[0022] The selective metallization **12** creates first conductive traces **14** over the substrate **10**.

[0023] Next, as illustrated in FIGS. **1**E and **1**F, second conductive areas **16**A, **16**B are created over the substrate **10** directly in contact with at least parts of the first conductive traces **14**.

[0024] At FIG. **1**E, a second layer **21** of conductive material **20** is deposited over at least a portion of the metallization **12** which is on the first upper surface portion **11'** of the first layer **11** of material **2**

[0025] The conductive material **20** may be, for example, indium tin oxide (ITO). The indium tin oxide may have been applied, for example, using magnetron sputtering or heat transfer printing. The indium tin oxide may be transparent.

[0026] In the illustrated example the second layer **21** of conductive material **20** contacts directly the metallization **12** on the first upper surface portion **11'** of the first layer **11** of material and also contacts directly the first layer **11** of material **2** that remains in the first state and has not received any metallization **12**.

[0027] At FIG. **1**F, the second layer **21** of conductive material **20** is patterned. The second layer **21** of conductive material **2** is selectively removed to create vias **18** through the conductive material **2** at least to the first layer **11** of material **2**. The vias **18** create separated second conductive areas **16**A, **16**B which are separated by a non-conductive gap provided by a via **18**.

[0028] The patterning of the second layer **21** of conductive material **20** may be achieved using a laser, for example, to ablate the conductive material **20**.

[0029] The patterning of the second layer **21** of conductive material **20** may, for example, use an ultraviolet (e.g. 350 nm) laser.

[0030] The laser may be used at a power and duration sufficient to completely remove the second layer **21** of conductive material **20** but of insufficient power and duration to remove the first layer **11** of material.

[0031] The patterning of the second layer **21** of conductive material **20** creates an apparatus **30**.

[0032] The apparatus **30** comprises: a substrate **10**; a material **2** configured to respond to irradiation to convert to a irradiated state in which it functions, where it has been irradiated, as a substrate for metallization; first conductive traces **12** formed by metallization over portions of the material **2**; and patterned second conductive areas **16**A, **16**B formed over the substrate **10** and directly in contact with at least parts of the first conductive traces **12**.

[0033] The selective irradiation of the first layer **11** of the material **2** enables selective metallization **12** while retaining a lower portion of the first layer **11** of the material **2** as a dielectric layer that physically separates the metallization **12** from the substrate **10**. The first layer **11** of the material **2** physically separates the metallization **12** from the substrate **10** and separates the second conductive areas **16**A, **16**B from the substrate **10**.

[0034] In some embodiments, the first conductive traces **14** may be connected to the conductive areas **16**A, **16**B to define electric circuits for sensing changes in capacitance between the conductive areas **16**A, **16**B. This enables the apparatus **30** to be used as a capacitive touch sensor.

[0035] At FIG. **1**G, a protective layer **22** is deposited over the upper surface of the apparatus **30**. The protective layer covers the via **18** and the patterned second layer **21**.

[0036] The protective layer **22** protects the second layer **21** from abrasion.

[0037] The protective layer **22** may also fill vias **18** and forms a capacitor dielectric positioned between plates of a capacitor defined by the separated second conductive areas **16**A, **16**B.

[0038] The protective layer **22**, if present, may, for example, be formed from an oxide such as, for example, silicon dioxide.

[0039] Various different compositions may be used for material **2**.

[0040] For example, the material **2** may comprise a reducing agent dispersed in a dielectric medium that provides for metallization in the second state. The reducing agent may be exposed in the second state following the selective irradiation. When metallization occurs, the exposed reducing agent may preferentially accelerate reduction of metal ions to form elemental metal. The dielectric medium may, for example, be a polymer or plastics. The material **2** may be deposited as a spray, for example, of liquid droplets.

[0041] For example, the material **2** may comprise metal oxide dispersed in a dielectric medium. The dielectric medium enables the material **2** to operate as a dielectric in the first state before irradiation. The metal oxide enables the material **2** to act as a substrate for metallization in the second state after irradiation. The metal oxide may for example be a transition metal oxide. The metal oxide may for example be a multi-metal oxide, that is, an oxide that includes at least two different metals. The two different metals may be transition metals. The dielectric medium may, for example, be a polymer or plastics. The material **2** may be deposited as a spray, for example, of liquid droplets.

[0042] For example, the material **2** may comprise an accelerator (catalyst) dispersed in a dielectric medium that provides for metallization in the second state. The dielectric medium may, for example, be a polymer or plastics. The material **2** may be deposited as a spray, for example, of liquid droplets

[0043] One example of a suitable accelerator is $AM_xB_yO_z$ where A is one or more elements selected from Groups 10 and 11 of the Periodic Table, M is one or more metal elements in oxidation state 3+ selected from the group consisting of Fe, Co, Mn, Al, Ga, In, Ti and rare earth elements, O is oxygen, B is boron, x=0 to 2, y=0.01 to 2 and z=1 to 4.

[0044] Another suitable accelerator is $A'M'_mB_yO_n$ where A' is one or more elements selected from Groups 9, 10 or 11 of the Periodic Table, M' is one or more metal elements selected from the group consisting of Cr, Mo, W, Se, Te and Po, O is oxygen, m=0.01 to 2 and n=2 to 4.

[0045] For example, the material **2** may comprise spinel-structure oxides ($CuCr_2O_4$)) dispersed in a dielectric medium that provides for metallization in the second state. The dielectric medium may, for example, be a polymer or plastics. The material **2** may be deposited as a spray, for example, of liquid droplets.

[0046] For example, the material **2** may comprise a heavy metal mixture oxide spinel, or a copper salt such as, for example, copper chromium oxide spinel.

[0047] The dielectric medium may, for example, be a polymer or plastics. The material **2** may be deposited as a spray, for example, of liquid droplets.

[0048] FIGS. **2**A-**2**E illustrate an example of how the method used in FIGS. **1**A to **1**G may be used to create a cover housing **36** for an electronic device. In this example, the cover